

CLAIMS

1. A microreactor which comprises a liquid introduction zone, a microscopic liquid channel and a liquid discharge zone, wherein the liquid channel is formed by a magnetic barrier by ferromagnetic track and is composed for liquid having magnetism introduced from the introduction zone to perform at least one kind of operation among chemical reaction, mixing, extraction and absorption in the liquid channel.
2. A microreactor according to claim 1, wherein an external magnetic field is applied to the ferromagnetic track or the magnetism of the track is maintained of its own accord.
3. A microreactor according to claim 1, wherein an outside of the liquid channel formed by the magnetic barrier is filled with surrounding fluid.
4. A microreactor according to claim 3, wherein a surrounding fluid is composed to perform at least one kind of operation among reaction, extraction and absorption with liquid flowing in the liquid channel formed by the magnetic barrier.
5. A microreactor according to claim 1, wherein a liquid discharge zone is expanded in the forward direction or branched to more than one zone.
6. A microreactor according to claim 1, wherein microscopic liquid channels are installed in plural and parallel, and is composed to perform the operation between liquids running in the channels.
7. A microreactor according to claim 1, wherein the microscopic liquid channel is branched and is composed to introduce or to discharge liquid from the branched channel.
8. A manufacturing method of a plated object which comprises an outside of a liquid channel formed by a magnetic barrier, which contact with a solid,

where a pattern along the liquid channel to the solid by plating solution flowing in the liquid channel.

9. A manufacturing method of a plated object according to claim 8, wherein electroless plating is provided to the solid by flowing electroless plating solution in the liquid channel formed by the magnetic barrier and furthermore electroplating is provided on the electroless plating layer formed by the electroless plating by flowing electroplating solution in the liquid channel.
10. A manufacturing method of a plated object according to claim 8, wherein in electroless plating and electroplating, the outside of a place flowing plating solution is filled with surrounding liquid.
11. A manufacturing method of an etched object, which comprises a outside of a liquid channel formed by a magnetic barrier, which is contacted with a solid, where a pattern along a liquid channel to the solid is etched by corrosive reaction or electrolysis of liquid flowing in the liquid channel.
12. A manufacturing method of a microreactor having a liquid channel formed by a magnetic barrier according to claim 8, wherein a ferromagnetic track is formed by the plating method.
13. A manufacturing method of a microreactor having a liquid channel formed by the magnetic barrier according to claim 1, wherein the ferromagnetic track is formed on a substrate in a band like by printing material containing magnetic material.

Fig. 1

1: Microreactor, 2a, 2b: Subject liquid inlet, 3a, 3b: Channel for introducing subject liquid, 4: Mixing reaction zone, 5: Detecting zone, 6: Laser, 7: Detector, 8: Discharge zone

Fig. 11

- (a) Resist application 71: Cu, 72: Substrate, 73: Photoresist
- (b) Exposure 74: Mask
- (c) Development 75: Positive-type resist, 76: Negative-type resist
- (d) Etching

Fig.12

- (a) Resist application
- (b) Exposure
- (c) Electroless plating after development 81: Positive-type resist, 82: Negative-type resist
- (d) Elimination of resist
- (e) Thickening of circuit membrane by electroplating
- (f) Magnified view

Fig. 13

- (a) Under mask method La: Electroless plating solution,
MB: Magnetic barrier
- (c) Over mask method
- (e) 94: Electroless plating layer 95: Counter electrode, 96: Electroplating layer, A: Electric current, Lb: Plating solution, Ld: Surrounding liquid, MB: Magnetic barrier

Fig. 14

- (a) 101: Container, 102: Pattern board
- (b) 102: Pattern board

Fig. 15

(a) 95: Counter electrode, 105: Electrode

(b) 95: Counter electrode, 105: Electrode